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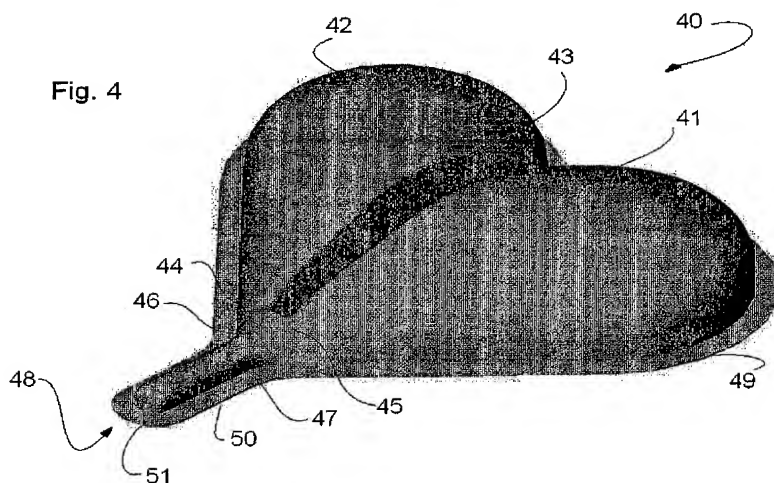
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(54) Title: DUAL RECEPTACLE SYMMETRICAL PACKAGE FOR LIQUIDS



(57) Abstract: A dual receptacle package for liquid material comprises a container. A central ridge formed into the container separates the container into two chambers. The two chambers may contain different material with minimal or no cross-contamination between the chambers. The content of the chambers is dispensed via a single or dual tunnel. The single or dual tunnel is opened into a single or dual orifice opening when a closure for the package is removed.

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DUAL RECEPTACLE SYMMETRICAL PACKAGE FOR LIQUIDS

Field of the Invention

The present application relates to a package for containing liquid materials, in particular, a flexible dual receptacle package.

Background of the Invention

Currently liquids such as jams, honey, preserves, sauces and condiments of various kinds – including such products as tomato ketchup, mustards, mayonnaise, salad oils, chilli sauce, jams, liquid chocolate, hazelnut, peanut jelly, and other such flavour additives, combinations and other like products are sold in individual, single-serve packages in the food service and hospitality trade. These packages are generally manufactured as a small pre-formed plastic or alumina cup, tub or tray, or vacuum formed plastic cup, tub or tray – usually round, rectangular or square in shape with almost vertical, conical shaped side walls, flat base and a soft peel-off closure forming a lid to enclose, cover and protect the contents. A small extension of the lid acts as a means of peeling the lid backwards to detach the lid from the main body of the package in use. A variation of this is also used, where a section tab of the tray body is centrally scored under the lid section to create a break point or weakened section score mark, such that when this score section is snapped the lid tab is easier to remove and contents revealed.

While larger bottles of such products are sold individually, the hospitality and catering trades commonly use individual, single serve packages as a means of presenting an individual food service portion and also avoiding human contact, cross contamination and wastage inherent in larger package forms.

Typically packages of this type can be thermo formed or pre-formed and filled or thermo formed and filled in one operation. They may be packed on machinery such as a Dosamat manufactured by Hermann Waldner (Germany); mini dose machines manufactured by Elton S.A from Spain, as well as using machines manufactured by other companies who may specialize in single serve packaging. The current invention can use the same type of equipment for filling the package, but with a dual filling operation for two separate liquid types.

The existing packages may be difficult for consumers to handle. A consumer may need to peel off the lid to open, and once opened the contents must be removed using a

spoon or knife to dispense the contents of the package. This is usually a messy procedure.

An alternative package has also been developed for sauces with a dual chamber plastic package – with a flat base, and rectangular shape where the lid section has a purpose made weakened, raised, and positioned lengthwise score line midway between the two longer parallel sides. When the two chambers under the lid are squeezed together, the contents are dispensed via the weakened scored section through the lid. This package can only deliver the contents of the package if the two chambers are squeezed toward each other, and by no other method.

Again, such packages are messy to handle, and there is little control over the delivery of the contents, which tend to squirt out, and in some cases cause the contents to spill onto the user. There is little control over the dispensing of such contents, with the package-opening pointed away from the user so that it is not visible to the user when dispensing the product.

The current invention is designed to increase visible control over the direction of dispensing and the dispensed quantity of such liquids, and therefore overcome the deficiency of such existing packages.

Small volume packages are also used in the cosmetic and toiletries industry, where the most common form of package is a small bottle or vial. The bottles or vials may be glass, plastic, or soft plastic tubes of various kinds that have lid closures. Such packages may be used for a range of products including skin care products, cosmetics, hand and face creams, skin lotions, suntan screens, liquid soaps of various kinds and other such products, including samples and demonstration of various cosmetics.

There are shortcomings of such single-serve packages and small bottles for containing and dispensing a pre-determined amount of a liquid. The invention disclosed herein seeks to provide a controlled means of dispensing a liquid product via a defined, visible and apparent opening that becomes visible after the removal of closure system at one end of the package. The disclosed technology also provides alternative means of dispensing the product – by opening the closure and squeezing individual chambers together, separately, or in sequence.

With each chamber containing an accurate measured volume of liquid, it is possible to ensure a volume relationship between the two separate liquids held in each chamber of the package.

Further, the present invention enables two separate products to be dispensed from the one package for a single use, but for dual purposes.

The current technology may have application as a single use, dual purpose package as a sampling tester in the cosmetic industry – where small volume packages are useful to those people wanting to test a product prior to purchase, and useful to cosmetic companies as both a demonstration and test sampling device. It is also preferably of a size and shape that is suited to use as a purse pack that may be useful during travelling, particularly given restrictions on larger packages through airport security.

Further, the present invention enables the user to use the package as a means of controlled decoration of a surface – such as to create a decorative individual pattern of tomato sauce/mustard on a hot dog, bagel, sub or sandwich; to add a white and brown chocolate coating onto a cake; signature decorations on a coffee or cake; decorative salad oils onto salads; use as a face paint for children's parties and such other purposes as determined by the user.

In effect this enables the user to use the package as a form of writing or drawing instrument using the contained liquid to draw with and create a recognizable artistic pattern, signature or shape.

Further, the present invention has application in the home hobby, hardware and plumbing businesses for applications such as glues - including two part glues; epoxies; sealants; silicones; and paints of various kinds where a single serve package form is desired to minimize wastage or when two associated components are used to create the desired end product mix.

While the package has been designed as a dual chamber package for two separate types of liquid, it will be readily appreciated that the package can also be used for one type of liquid in both chambers of the package.

In another depiction of the package, a single orifice opening is also possible where the separation of the two liquids is not specifically required or desired.

In general, the package will be constructed from a thermo-formed or as pre-formed vacuum package, but equally it could be formed in a variety of soft plastics or laminates which might be clear, opaque, translucent or coloured for decorative or other reasons.

It is also possible that the package form could also be textured or sculpted and coloured to create a creative decorative effect and resemble the surface and visual colour of a fruit such as a lemon or strawberry or other such object.

5 As a single serve package holding two independent but related liquids, the invention eliminates the need for two separate packages and the additional packaging materials involved. It allows for savings in space, transport cost, environmental cost, and inherent costs associated with having two separate packages. The present technology has the potential to achieve significant cost savings in manufacture, distribution and beyond the sale to the point of disposal.

10 The present technology has a number of advantages over conventional single serve packaging forms. It combines two separate products into one package. It may be useful for dispensing single serve products such as sauces and condiments, certain alcohols, cocktail mixes, milks and other foods or beverages of a liquid or semi liquid form, cosmetic and toiletries products such as liquid soaps, face and body creams,
15 shampoos and conditioners, artist materials, glues and hardware, plumbing, sealing compounds and such like products.

In particular, the package contains two separate liquids that are isolated from each other, with no cross contamination, in a single serve package form. The package enables both liquids to be dispensed for a common use, or be dispensed sequentially
20 as needed.

Further, the use of a single or dual orifice and closure system enables the contents to be dispensed in a controlled flow. It can also be used directionally to dispense the contents in a more defined manner. Moreover it enables the contents to be used for a decorative effect, as in a personal signature using the contents to draw with,
25 with the user having precise control in dispensing the content. For example, the package might be used to draw a straight or random line on a hot dog using mustard and tomato ketchup, to provide a dual colour and taste combination. The package may be useful for creating a signature or message on a cake, donut, bagel, or coffee using the contents. The package may be useful in containing a two-part glue and merge the
30 two compounds together at the point of use.

In reading the specification it should be noted that any discussion of documents, acts, materials, devices, articles or the like which have been included is solely for the purpose of providing a context to the present invention. It should not be taken as an admission that any or all of these matters from part of the prior art base or were

common general knowledge in the field relevant to the present invention as it existed before the priority date of each claim of this application.

Summary of the Invention

5 According to the first aspect, the present invention is a package comprising two separate, symmetrical chambers. The chambers are sealed by a separate top lid that defines the overall shape of the package. A central ridge, which separates the two chambers, also operates as a hinge between the two chambers.

10 According to the second aspect of the invention, the present technology is a method of dispensing a predetermined volume of a liquid material or substance, by opening the end closure to provide a single or dual orifice opening, and to enable the user to dispense the contents by squeezing the contents of each chamber in the package, either separately, sequentially or together.

15 Brief Description of the Drawing Figures

By way of example only, the invention is now described with reference to the accompanying drawings:

- 20 Figure 1 is a perspective view of a heart-shaped dual orifice package, showing the dual chambers in which the contents will be contained, and the dual orifice opening through which the contents will be dispensed.;
- Figure 2(a) is an exploded perspective view of the dual orifice package, depicting a sealing lid and a container structure;
- 25 Figure 2(b) is an exploded elevation view of the dual orifice package depicted in Figure 1;
- Figure 2(c) is another exploded perspective view of the dual orifice package;
- Figure 3(a) is a left elevation view of the dual orifice package;
- 30 Figure 3(b) is a bottom plan view of the dual orifice package;
- Figure 3(c) is a bottom perspective view of the dual orifice package;
- Figure 3(d) is a front elevation view of the dual orifice package;
- Figure 3(e) is a right elevation view of the dual orifice package;
- Figure 3(f) is a top plan view of the dual orifice package;

- Figure 3(g) is a top perspective view of the dual orifice package;
Figure 4 is a perspective view of an embodiment of the package, the embodiment being heart shaped and having a single orifice;
Figure 5(a) is a bottom plan view of the embodiment depicted in Figure 4;
5 Figure 5(b) is a bottom perspective view of the embodiment depicted in Figure 4;
Figure 5(c) is a front elevation view of the embodiment depicted in Figure 4;
Figure 5(d) is a right elevation view of the embodiment depicted in Figure 4;
Figure 6 is a perspective view of another embodiment of the package that is
10 tear shaped and has a single orifice;
Figure 7(a) is a bottom plan view of the embodiment depicted in Figure 6;
Figure 7(b) is a bottom perspective view of the embodiment depicted in Figure 6;
Figure 7(c) is a front elevation view of the embodiment depicted in Figure 6;
15 Figure 7(d) is a side elevation view of the embodiment depicted in Figure 6;
Figure 8 is a perspective view of an embodiment that is round and has a single orifice;
Figure 9(a) is a bottom plan view of the embodiment depicted in Figure 8;
Figure 9(b) is a bottom perspective view of the embodiment depicted in Figure
20 8;
Figure 9(c) is a front elevation view of the embodiment depicted in Figure 8;
Figure 9(d) is a side elevation view of the embodiment depicted in Figure 8;
Figure 10 is a perspective view of an embodiment that is 'comma' shaped and has an extended orifice section;
25 Figure 11(a) is a bottom plan view of the embodiment depicted in Figure 10;
Figure 11(b) is a bottom perspective view of the embodiment depicted in Figure 10;
Figure 11(c) is an elevation view of the embodiment depicted in Figure 10; and
30 Figure 11(d) is another elevation view of the embodiment depicted in Figure 10.

Best Mode and Other Embodiments of the Invention

The dual chamber package will be generally be developed in a heart shape, teardrop, round, oval, kidney, comma or another shape, for example symmetrical alphabets

such as M or W. Referring to Figures 1 to 3, the shape of the package 10 is largely defined by those of the lid (or "cover") 11 and a container 12. For the purpose of this specification, the lid (or "cover") 11 is defined as the top of the package. The container 12 has two chambers 13, 14 that are separated from each other by a central cleft 15
5 formed into the container. In the embodiment shown, the cleft tapers and becomes narrower toward the lid (or "cover") 11. Here the cleft 15 also extends a full length of the container 12. The cleft 15 looks like a ridge when it is viewed from the interior of the container 12 (see Figure 2(a)). In the embodiment shown, the chambers 13, 14 taper toward an extended end of the container, and narrow into dispensing channels 26, 27.
10 Each channel 26 (27) is in communication with its corresponding chamber 13 (14). The channels become dispensing tunnels 26, 27 when the container 12 is sealed by the top lid (or "cover") 11. The tunnels 26, 27 are elongated. The length 30 of each tunnel is several times the tunnel's diameter (or "width") 31. Preferably the tunnels 26, 27 are substantially parallel to each other, the tunnels being adjacent to each other and
15 separated only by the cleft.

The cleft (or "ridge") 15 also operates as a hinge mechanism, akin to that of a butterfly. The two separate chambers (or receptacles) 13, 14 come together as wings when pressure is applied, and the content of each chamber is dispensed via an orifice (not shown) that is closed by a closure 16. The orifice and the closure 16 are located at
20 an extended end 17 of the central ridge 15. The size of the orifice and closure 16 may vary, as long as the closure 16 is easily opened, for example snap-opened, to enable the contents to be squeezed out via the orifice. In general the orifice is between 1.0mm and 3.0mm in diameter, but this can be varied according to the content within the package and overall size of the package.

25 Referring to Figures 2(a), (b), and (c), the container 12 may be pre-formed, vacuum-formed or made in a soft plastic material. The container has an outer perimeter 21. The outer perimeter forms part of the top 22 of the container 12. The top 22 of the container 12 is preferably flat to enable easy storage and stacking of multiple packages. The chambers 13, 14 are equal in shape, volume and size but are separated by a
30 central ridge 15. As shown in Figure 2(a), a top surface (or "central inner edge") 23 of the central ridge 15 is visible from the top as a central partition between the chambers. The lid may be a plastic, laminate or alumina sheet which is die cut. Each chamber preferably has a rounded shape that is widest at the top 22. This shape facilitates easy

pre-forming, manufacture and the stacking or storage of the container, and provides overall aesthetics to the design.

The container 12 may be translucent, clear, pearlescent or coloured, and it may be smooth, textured or sculptured. In some embodiments of the invention, a coloured and textured package may be produced to create the illusion of a fruit such as a lemon or strawberry or other such object that reflects the contents.

The central inner edge 23 also forms a part of the container's top 22. The central inner edge 23 and the outer perimeter 21 provide an attachment area between the container 12 and the lid 11. They are sufficiently wide, so that the lid 11 can be attached to the container form a secure seal. The sealing may be done by gluing, heat sealing, or ultra sonic welding. The seal is secure enough to prevent cross contamination between the content of the chambers, and to fully enclose the contents by providing an air-tight and moisture-proof seal.

The lid (or "cover") 11 is constructed of a barrier material (food grade where required). The material can be various types plastics, bio-plastics, alumina or other such material. The cover 11 and the container 12 are preferably constructed using materials with different stiffness.

An exterior 24 of the lid 11 may have printed on it indicia for the purposes of decoration, identification of the content and the weight or volume of the content, identification of the brand, date coding other uses. The lid 11 may further have formed in it a central weakened line 28, for example a score line. The weakened line 28 aids the folding of the entire package. Using two fingers such as a thumb and another finger, the user grips the package by the lid edges or by the two receptacles, and exerts pressure to dispense the contents in a controlled manner.

It will be appreciated that the size, volume and weight of the package will vary according to the type and quantity of the contents, but overall the package is designed for a single use. It should also be recognized that the package is tamper evident.

The two chambers 13,14 may contain the same product or different products that are complementary to each other. A wide variety of viscous, semi-viscous or liquid materials may be contained in the package. These products could be, without limitation, alcohols, cocktail mixes and such foodstuffs as flavourings and sauces of various kinds, including but not limited to tomato sauce, chilli sauce, ketchup, mustards, soya sauce, seafood sauce, Asian sauces, fruit sauces and such products as condensed milk, milks, products derived from milk, honey, yogurts, white and dark chocolate, hazelnut, vanilla,

caramel, coffee, strawberry, apple and other fruit compounds and flavourings as well as decorative cake icings, fudges and confectionery uses, including such products as food colourings, liquid herb, soup and spice mixes; jams, spreads and condiments; mayonnaise and salad oils and dressings and such like food products.

5 The package can be used for toiletry and cosmetic uses. For example it may contain such products as shampoos, conditioners, body and face washes, creams and lotions, baby oils, bath additives, facial scrubs, herbal remedies, skin tonics, suntan lotions, liquid soaps and other such uses.

10 The package can also be used for pharmaceutical purposes of, for example, dispensing skin remedies, cough and cold remedies, vitamin supplements and other medicines where a single or dual serve package is required.

15 In the hardware, plumbing and paint industry the package has application in dispensing decorative paints, single use glues, silicones and epoxies. In the artist supply market the package has application as a means of dispensing face paints, artist paints, colour effects and such like purposes.

20 As further shown in Figures 2(a),(b), and (c), the lid 11 encloses and seals the contents of the package 10. This lid 11 may be die cut to define the package size and outline the package shape, such as a heart shape or another shape. The lid 11 acts as a seal membrane and is attached to the top of the container 12 via heat sealing, gluing or other attachment mechanisms. The exterior 24 of the lid 11 is constructed of a material suitable for printing, decorative, and branding purposes.

25 The lid 11 preferably has formed in it a weakened (or softened) line or score line 25 between a closure 16 for the package and the rest of the package 10. This line 25 aids the opening of the package.

30 The lid 11 may be manufactured from materials such as plastics, laminates, bio-degradable or alumina materials which are inert, food compliant or non-reactive with the contents held within the package so as to comply with all safety and legislative issues.

 The container 12 comprises moulded twin chambers 13, 14 and a central ridge 15 that separates the two chambers 13, 14. The orifices for the two chambers are joined to a single closure 16.

 The chambers 13, 14 are symmetrical about the central ridge 15. As described previously, each chamber shaped so as to enable the stacking of filled or unfilled packages. The top perimeter of the container 12 and the top edge of the central ridge 15 lie on a single horizontal plane 22. The top perimeter and the top edge are of

sufficient width to enable the lid 11 to be attached via heat sealing, glues or other means so as to form a complete seal to preserve the contents of each chamber and keep them separate, one to the other until the package is used.

5 The sides of each chamber are sloped outwardly from the bottom of the container, so as to enable easy moulding and also stacking of unfilled chamber packages where they are pre-formed.

The container 12 may be smooth walled or in some versions of the package textured or shaped to have an appearance that suggests the type of contents. For example the container may be made to resemble a strawberry or a lemon. The
10 chambers may be pre-tinted in a colour to add further to the depiction of some contents such as fruits or other substances.

The plastics or materials used in constructing the second part of the package can be clear, transparent, translucent, pearlescent or coloured as desired, without changing the functionality of the package form.

15 The two chambers mirror each other in size and shape. The volume of liquids inside each chamber will vary according to the contents, but will generally be between 1 and 10 ounces.

In usage each chamber is designed to be squeezed so as to deliver the contents via the twin orifice tunnels 26, 27 to the closure 16. This squeezing may be by
20 squeezing the two chambers toward each other – similar to two butterfly wings folding together—hinged by the central ridge 15. The chambers may alternatively be individually squeezed or in sequence to dispense the contents of one or both chambers.

The central ridge 15 of the container 12 is designed to provide a clear separation of the two chambers 13, 14 and twin orifice tunnels 26, 27 such that the contents do not
25 mix prior to use. The central ridge 15 also offers a means of attaching the lid section to provide a seal to enclose the contents of the package. The central ridge further acts as a hinge about which the two chambers of the package fold toward each other. Therefore, in use the central ridge performs a vital function.

The twin orifice tunnels 26, 27 are designed such that they maintain a separation
30 between the two separate contents until the time of use – so that no cross mixing or contamination occurs prior to use.

The closure (or “end cap”) 16 is designed as a snap-off closure, where a score line 25 defines the position of the opening. The score line 25 facilitates the user to snap open the closure 16 either completely or partially to create an opening. In certain

configurations a small screw-on overcap, twist plug or other closure method may be used as an alternative package closure/opening system.

Referring to Figures 4 and 5, it will be appreciated that in some examples, the package 40 may have only a single orifice without affecting the overall operational use of the package. The contents from both chambers exit to the same tunnel.

The package 40 – described as a 'butterfly pack'—is designed to dispense the contents of the two chambers 41, 42, the two chambers being symmetrical about a central cleft (or central ridge) 43. The contents may be two distinctly different types of liquid. Each chamber 41 (42) narrows into a chamber exit port 44(45). The chamber exit ports 44, 45 come together in a merge area 46. A preferably elongated channel 47 leads away from the mixing area 47 and toward an extended end 48 of the package 40. The channel 47, when sealed by the top lid (or "cover") 49, becomes the dispensing tunnel.

A closure 50 closes the single tunnel (or channel) 47, and may be removed from the package 40 along a score line 51. The removal (for example, by snapping open) of the closure 44 creates a single orifice or opening through which the chamber contents are dispensed. The package 40 allows the dispensing of the content with directional control over the quantity and direction of that flow for a single individual usage application.

Referring to Figures 6 and 7, a similar package 60 may be provided, except that the lid is substantially tear-drop shaped.

Referring to Figures 8 and 9, the package 80 may also be provided with a round shape.

Referring to Figures 10 and 11, the package 100 may also be provided with a comma shape. The two chambers 101, 102 are preferably symmetrical about a central ridge 103. However, the package 100 itself needs not be symmetrical about the central ridge 103. Here the tunnel 103 is curved to create the comma shape of the overall package. A notch 105 may further be formed into the perimeter of the package at a location adjacent to the closure. The notch 105 may align with the weakened score line 107 between the closure 108 and the rest of the package. Alternatively, it may replace the weakened score line.

While the present invention has been disclosed with reference to particular examples and details of construction, these should be understood as having been provided by way of example and not as limitations to the scope or spirit of the invention.

What is Claimed is

1. A dual chamber package, comprising:
 - 5 a container having an outer perimeter;
the container having formed into it a cleft, the cleft dividing the container into two chambers;
each chamber having an exit port;
the exit ports leading into a merge area;
 - 10 a dispensing tunnel extending from the merge area; and
a cover joined to the outer perimeter.
2. The package of claim 1, wherein,
 - 15 the chambers are symmetrical about the cleft.
3. The package of claim 1, wherein,

each chamber narrows toward its exit port.
 - 20
4. The package of claim 1, wherein,

a length of the dispensing tunnel is several times longer than a width of the tunnel.
- 25 5. The package of claim 1, wherein,

the cover tapers towards an extended end.
6. The package of claim 1, wherein,
 - 30 the seal is joined to a flat topped surface of the cleft.
7. The package of claim 1, further comprising,

a closure and a score line located adjacent to one end of the tunnel.

8. The package of claim 1, further comprising,

a closure, the closure being located adjacent to a notch formed into the outer perimeter.

5

9. The package of claim 1, wherein,

a content of the chambers is visible through the container.

10 10. A dual chamber package, comprising:

a container having an outer perimeter;

the container having formed into it a cleft, the cleft dividing the container into two distinct chambers;

15 each chamber being dischargeable through a tunnel; and
a cover joined to the outer perimeter.

11. The package of claim 10, wherein,

20 the chambers are symmetrical about the cleft.

12. The package of claim 10, wherein,

each chamber tapers toward the tunnel.

25

13. The package of claim 10, wherein,

the container and the cover are constructed from materials of different stiffness.

30 14. The package of claim 10, wherein,

The closure is a snap-off closure.

15. The package of claim 10, wherein,

a length of each tunnel is several times of a width of the tunnel.

16. The package of claim 10, wherein,

5

the cover is joined to a flat surface of the cleft.

17. The package of claim 10, wherein,

10 the cleft tapers and becomes narrower toward the cover.

18. The package of claim 10, wherein,

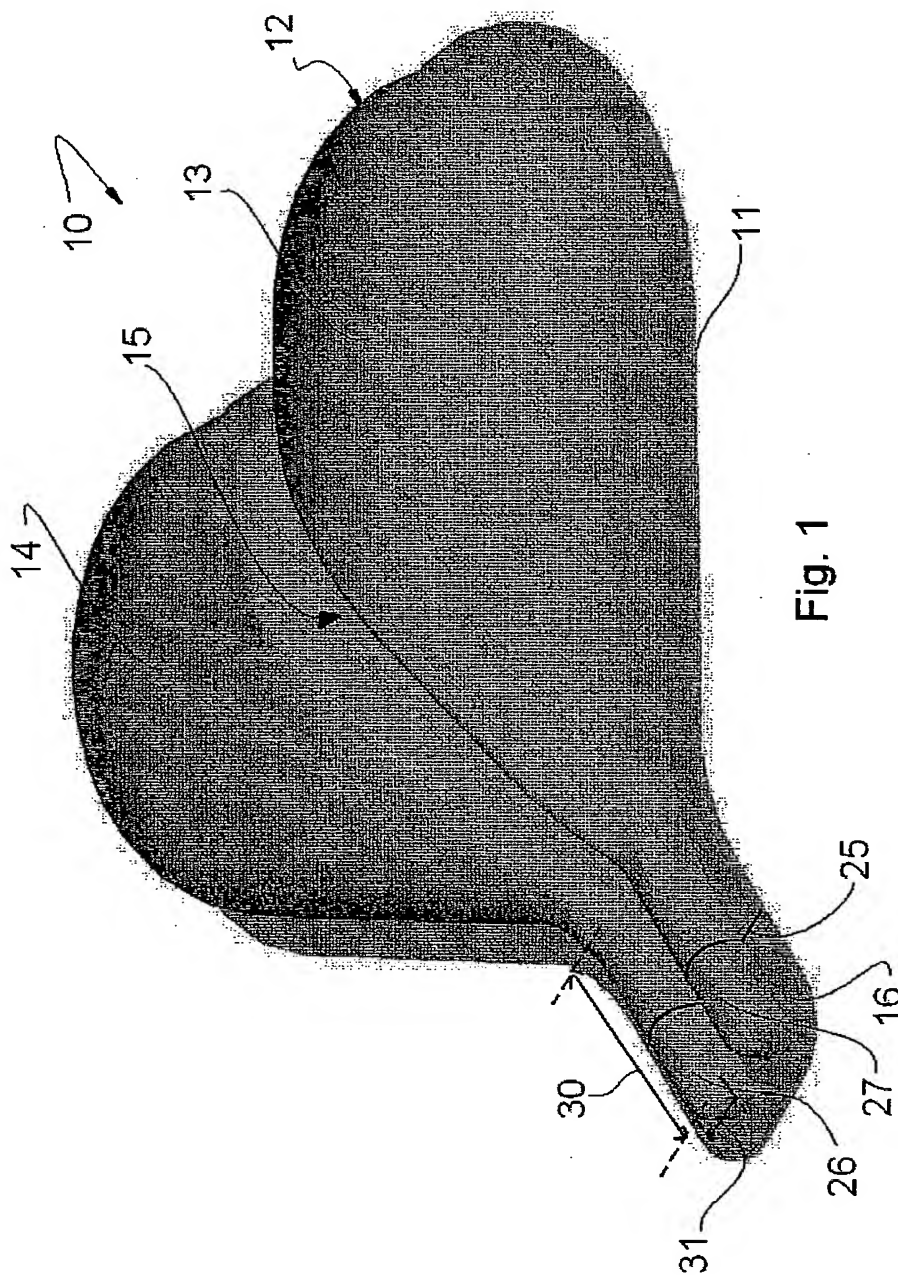
the two tunnels are separated from each other only by a top surface of the cleft.

15

19. The package of claim 10, wherein,

the cleft extends through a full length of the container.

20



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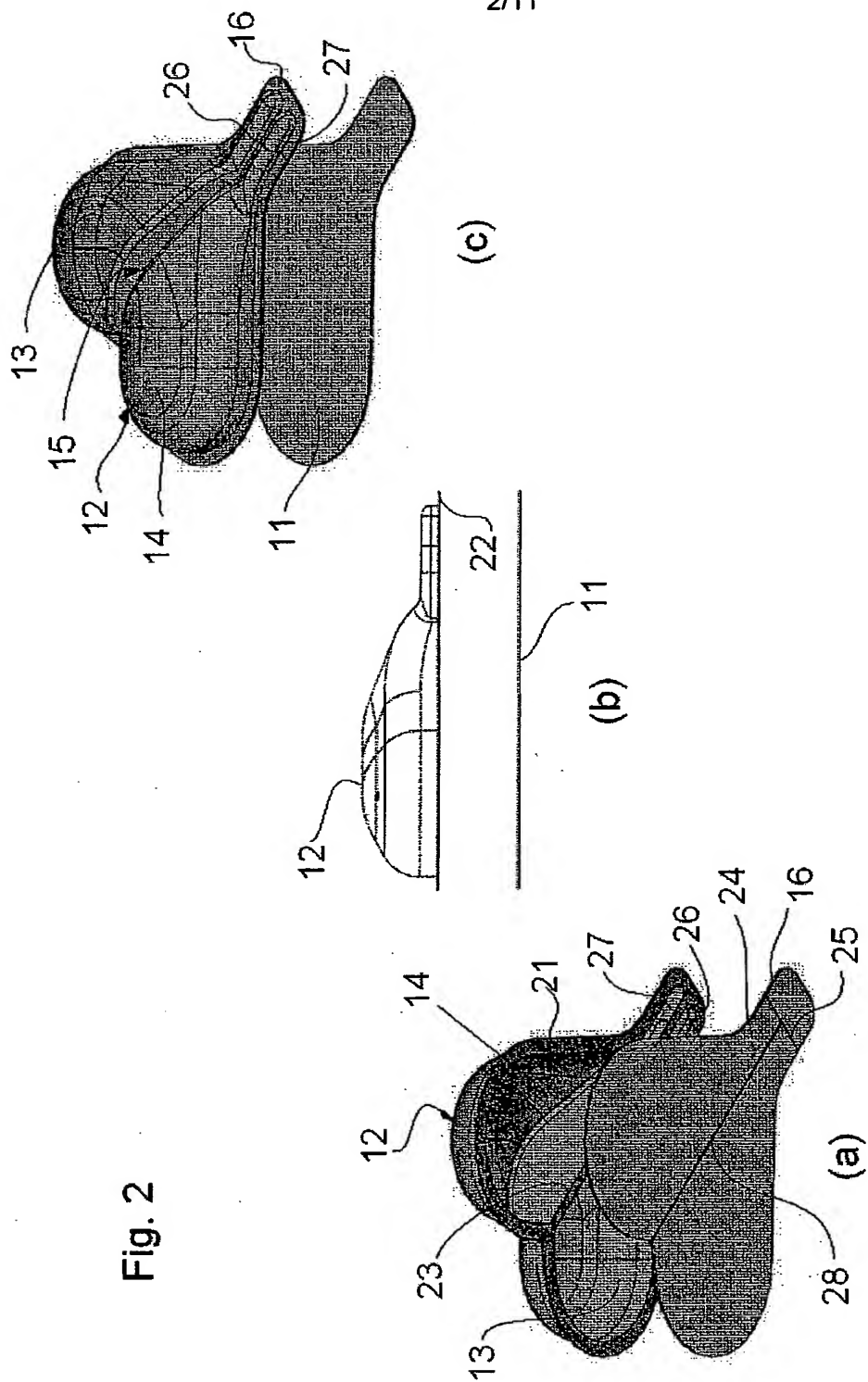
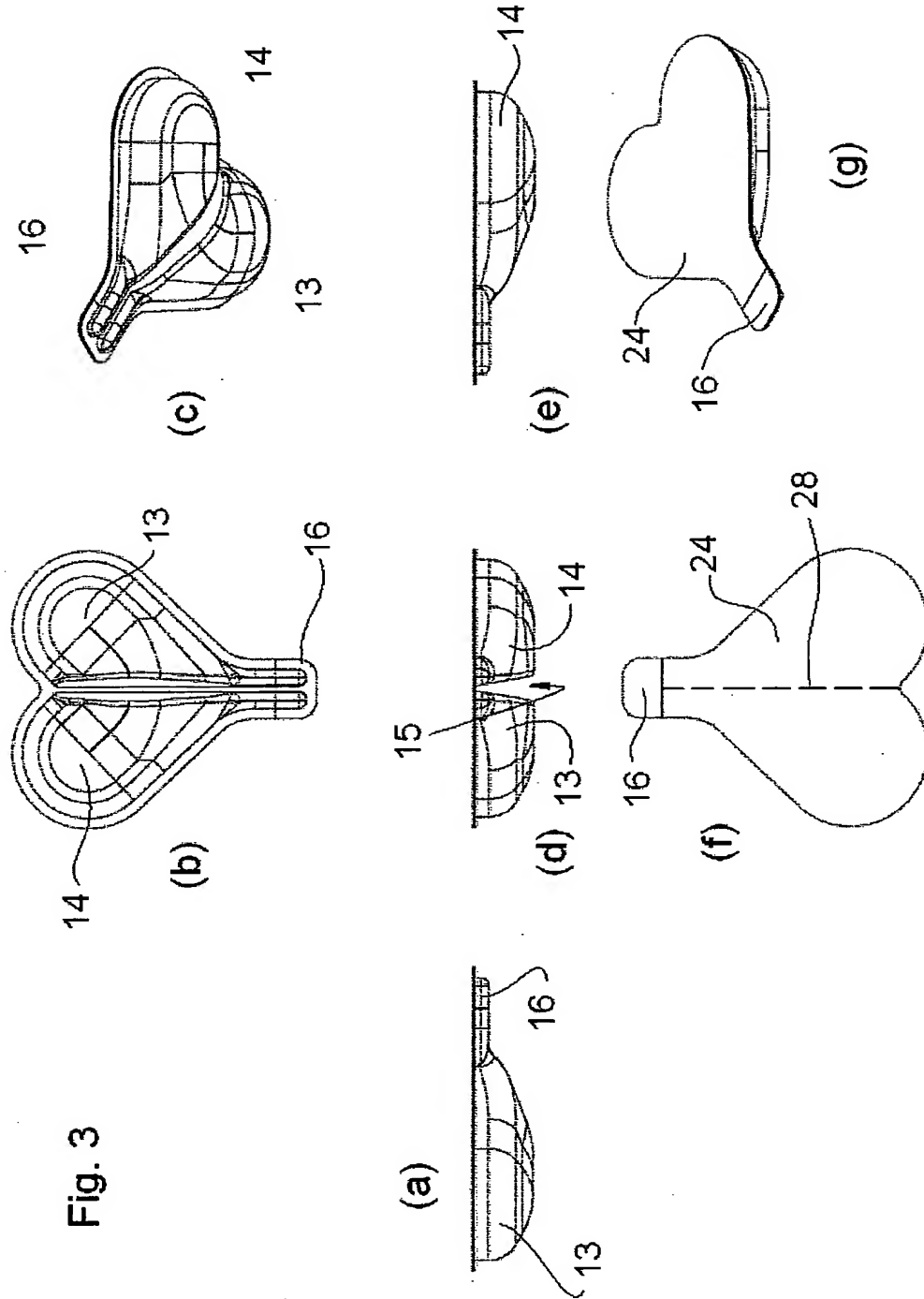
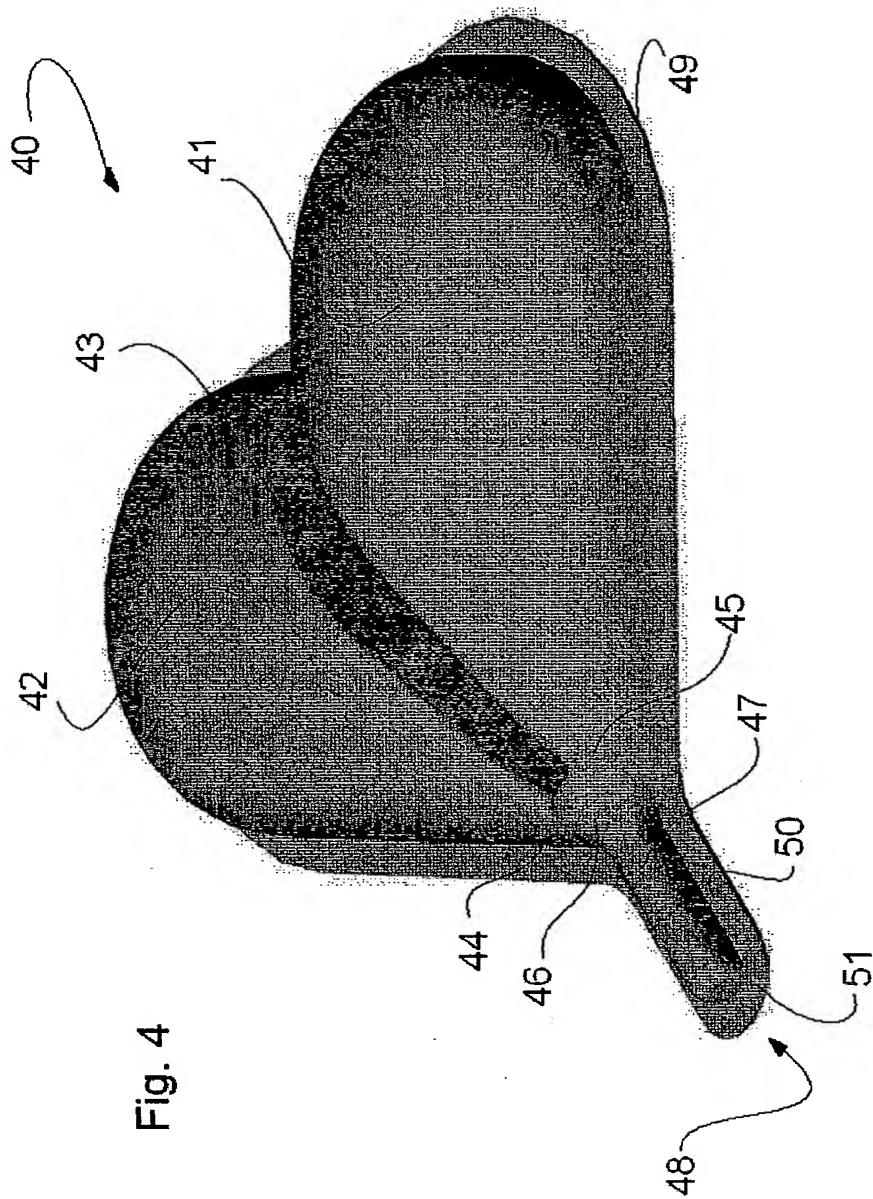


Fig. 2

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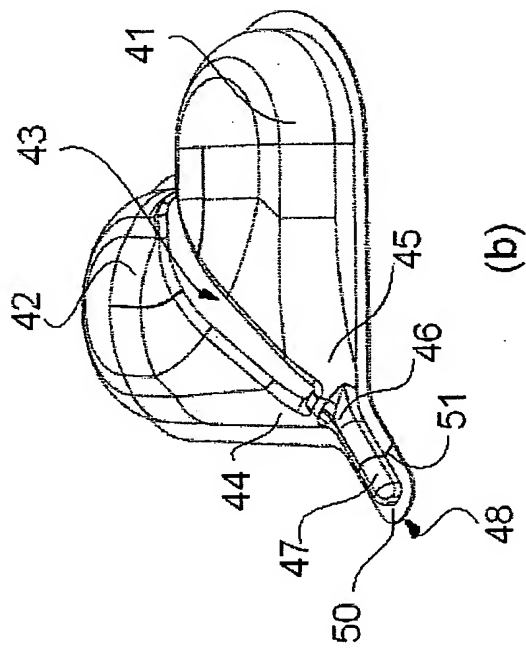
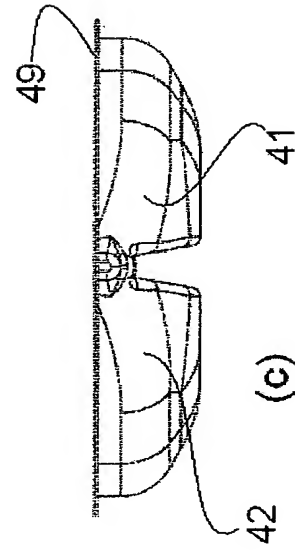
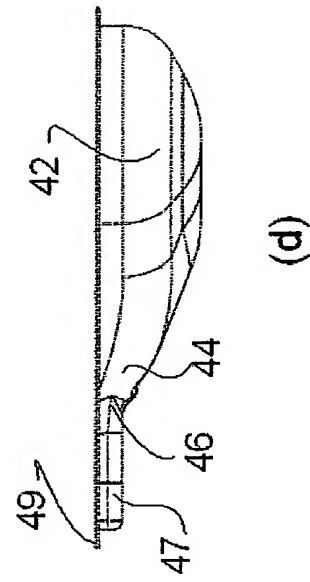
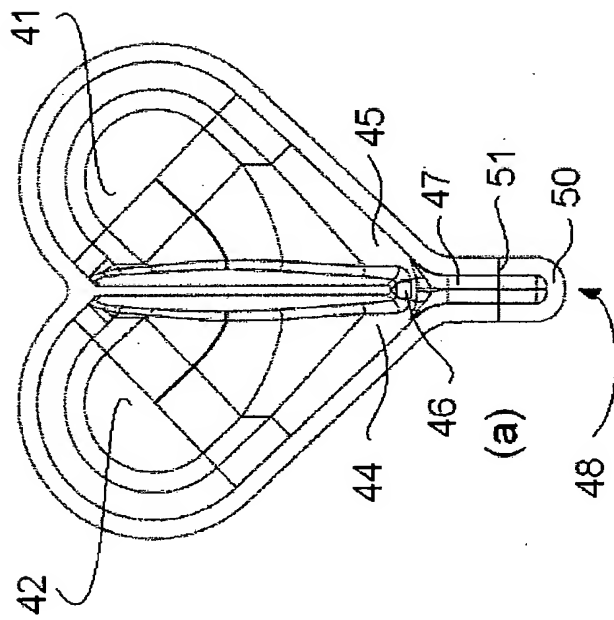


Fig. 5



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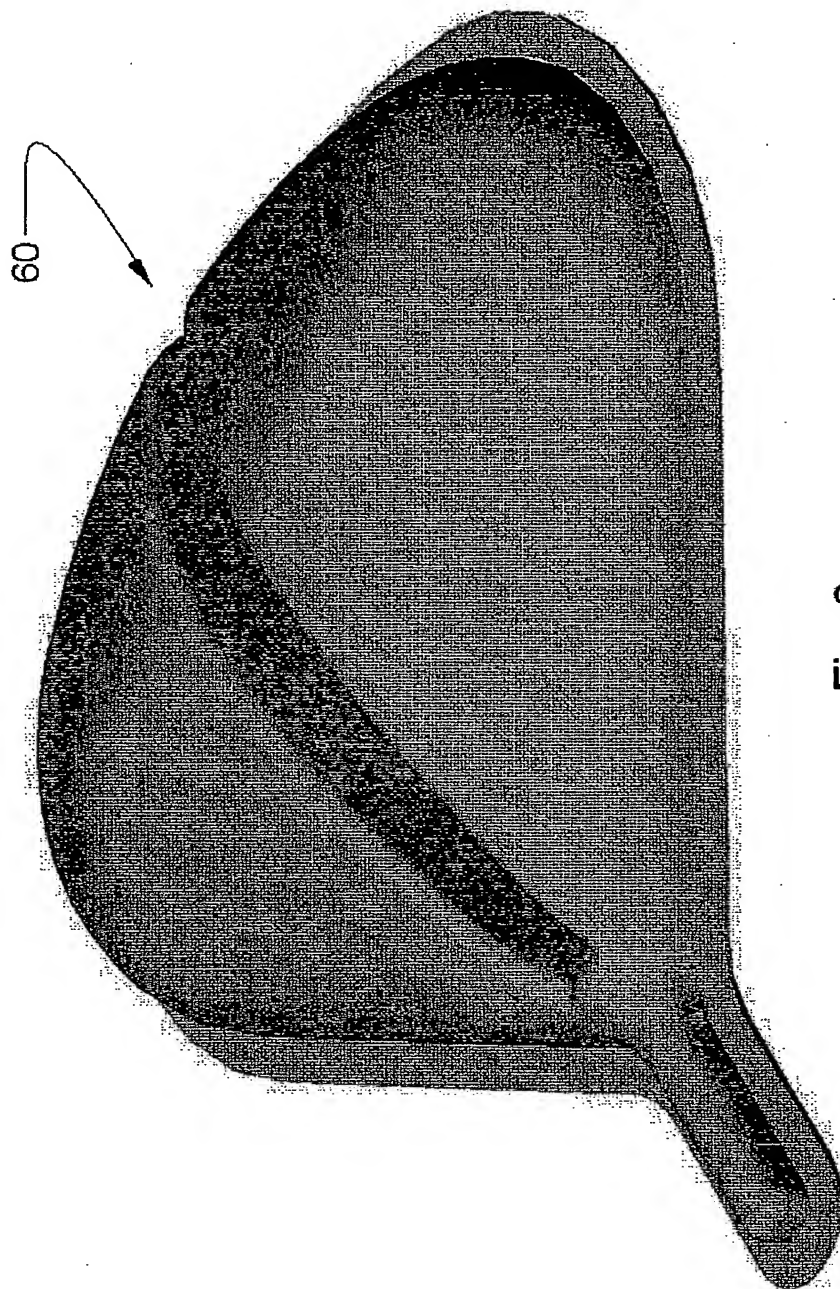


Fig. 6

7/11

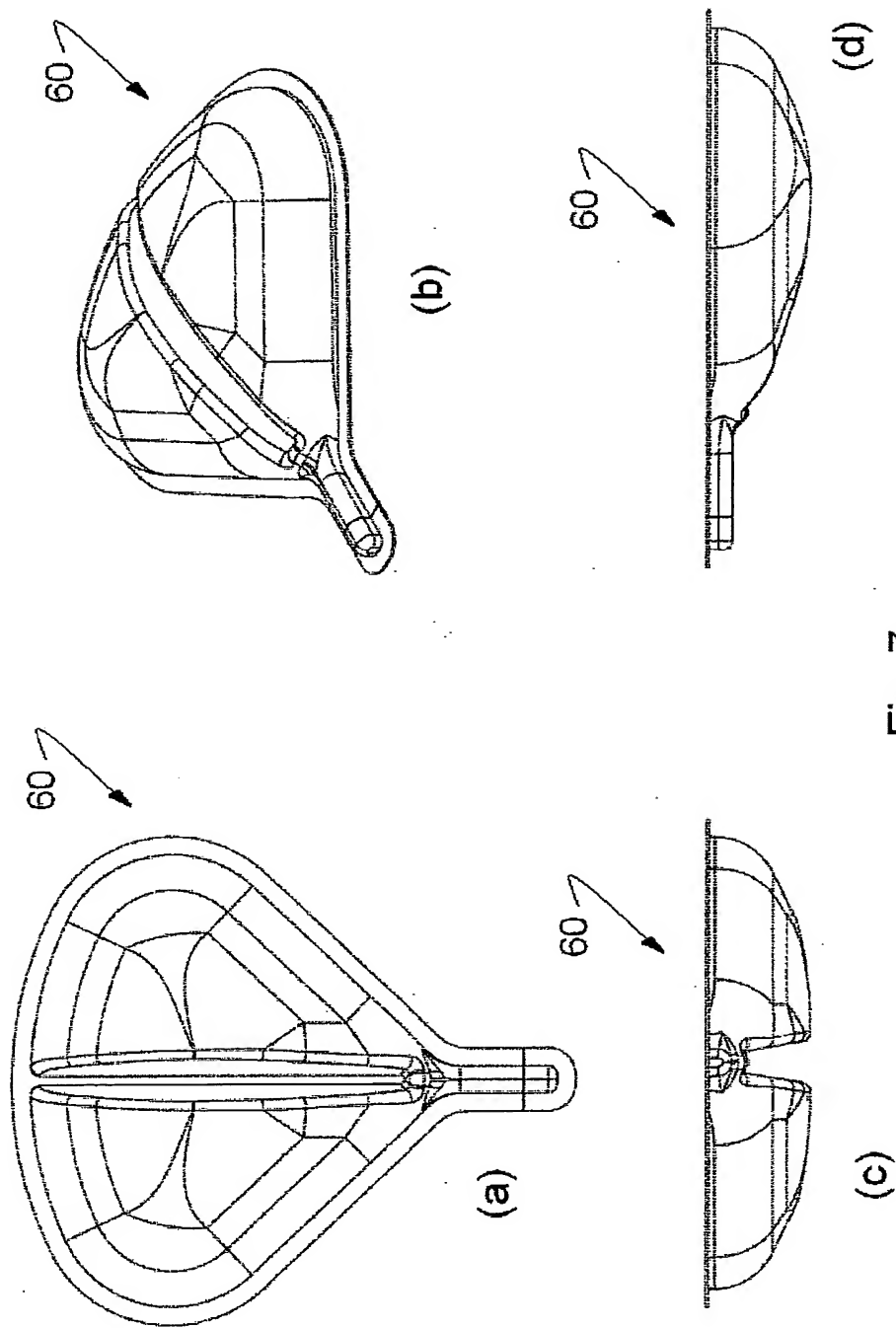


Fig. 7

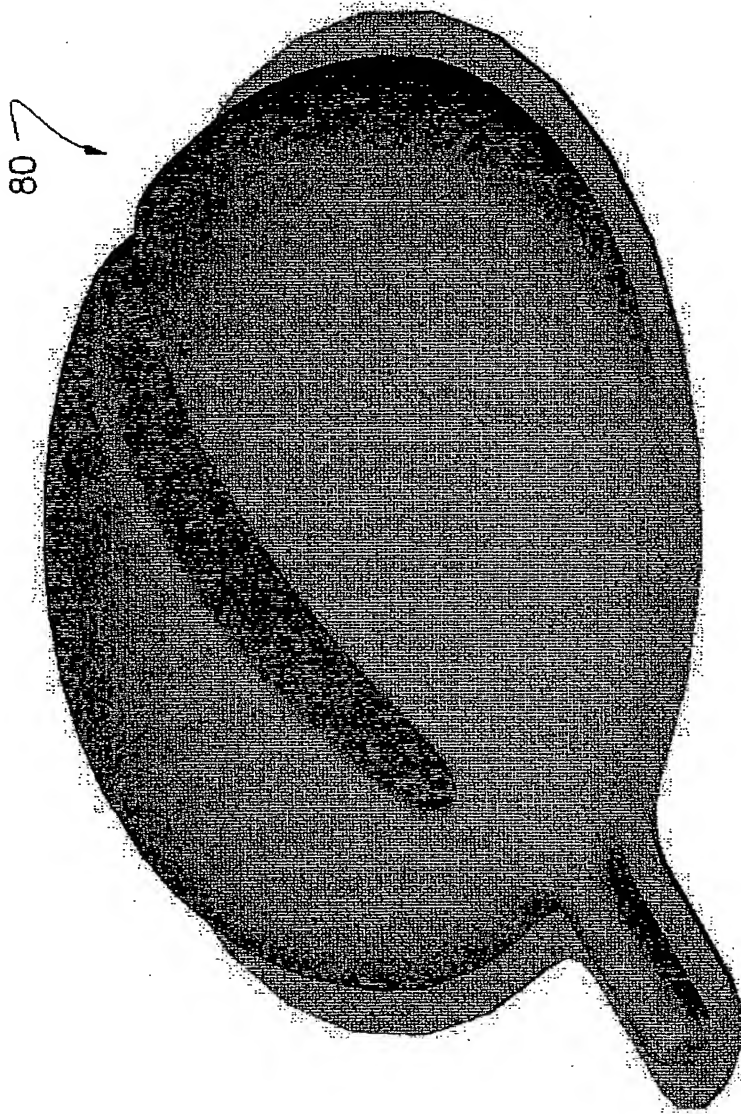


Fig. 8

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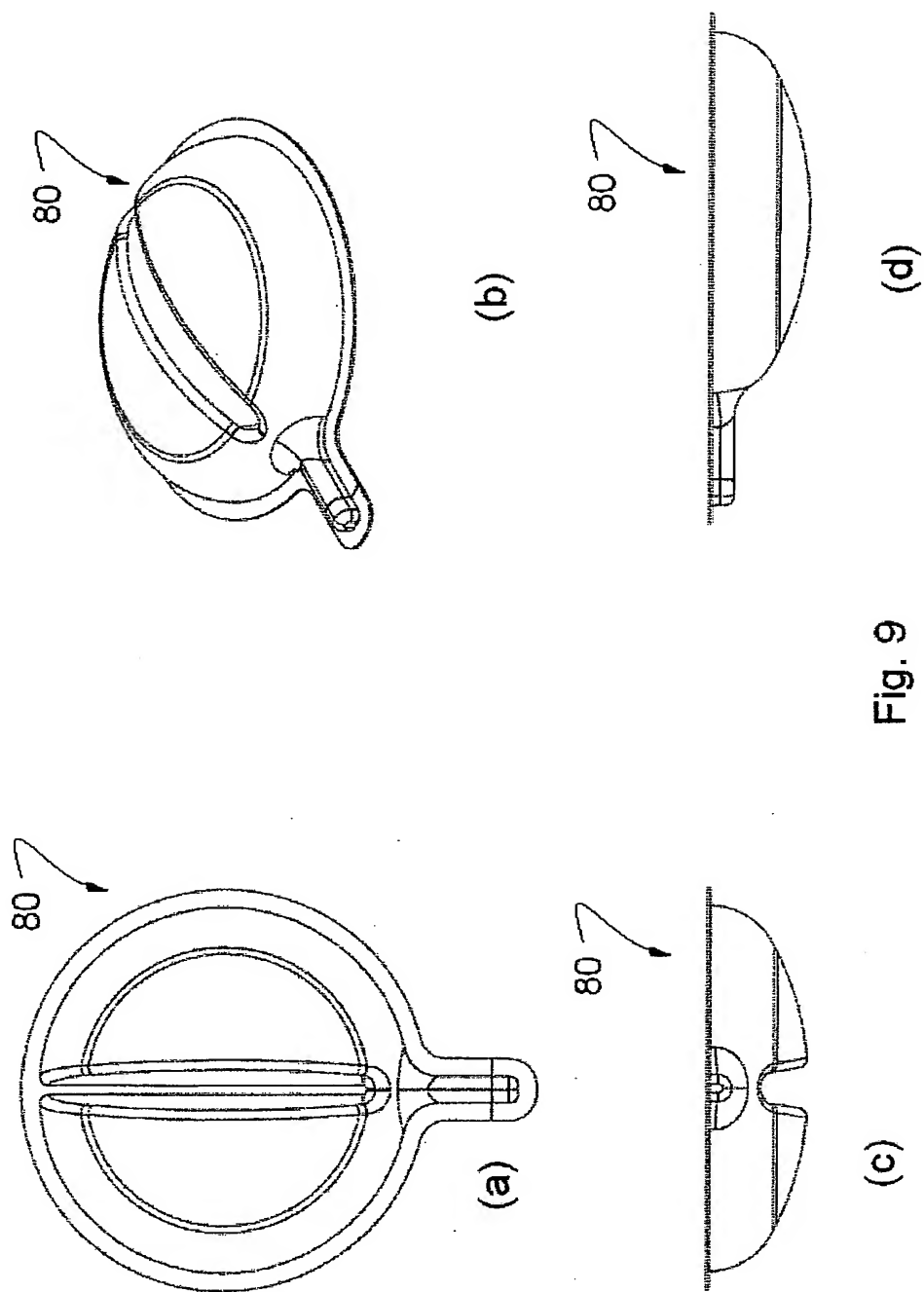


Fig. 9

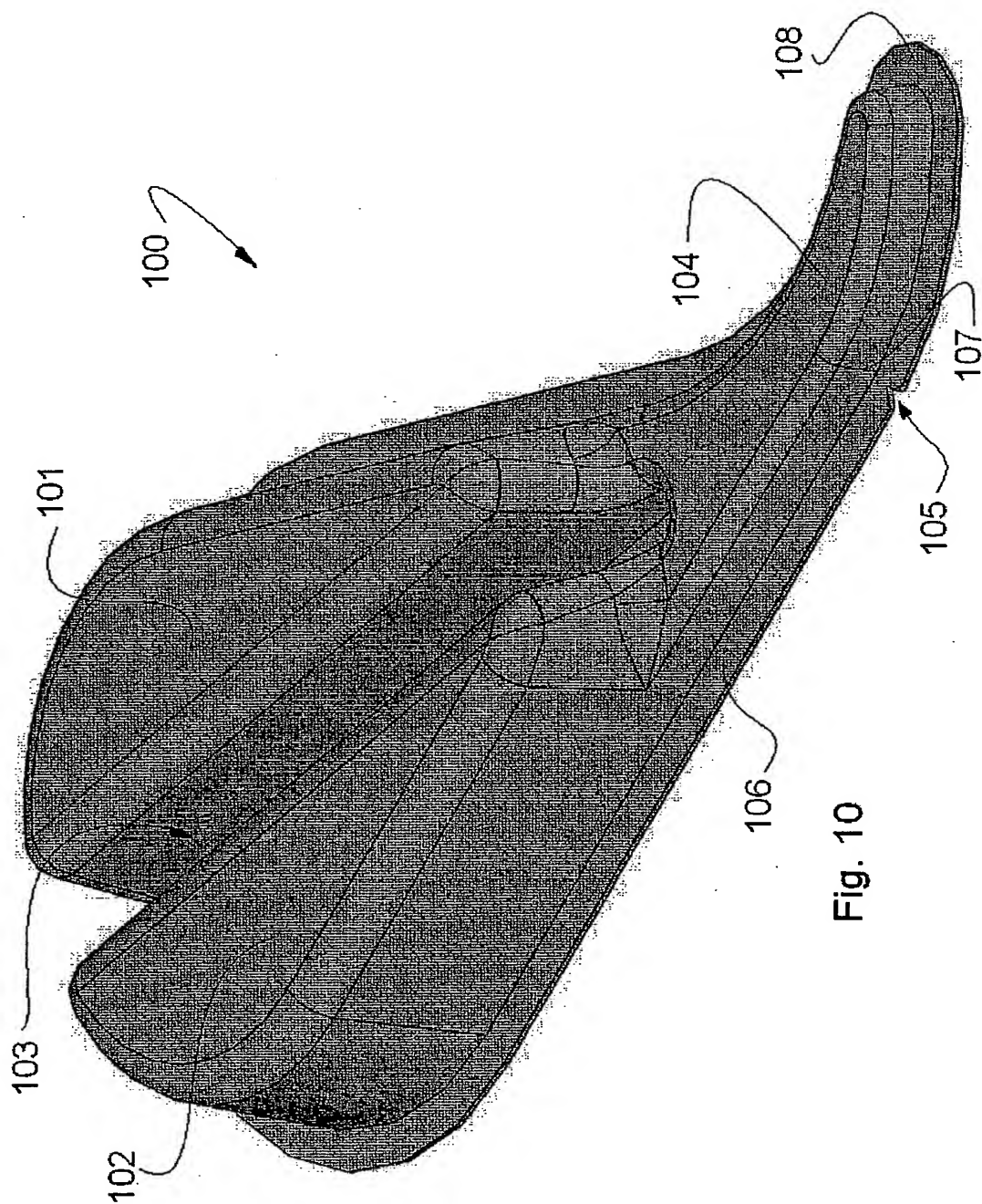


Fig. 10

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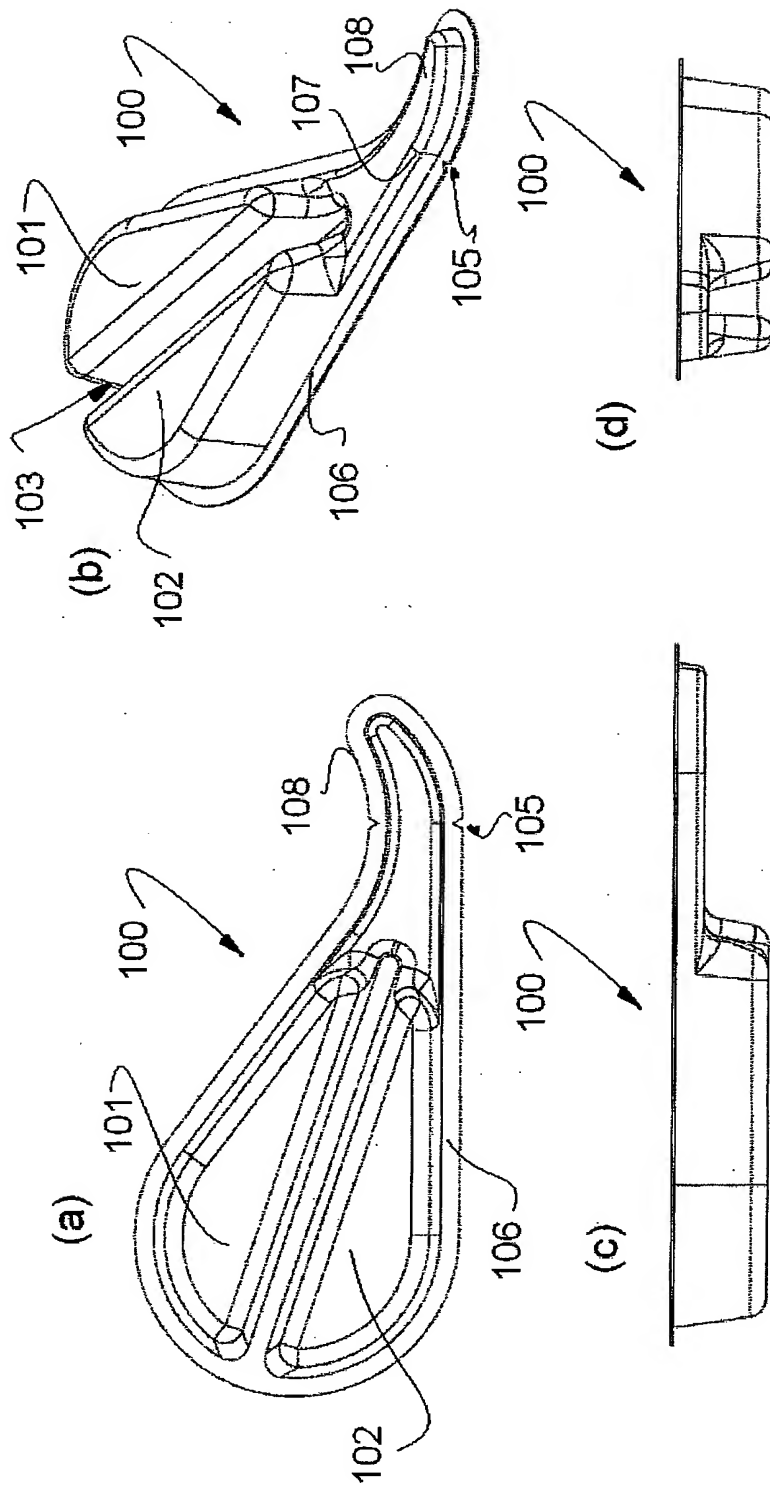


Fig. 11

INTERNATIONAL SEARCH REPORT

International application No.

PCT/AU2008/001541

A. CLASSIFICATION OF SUBJECT MATTER																						
Int. Cl.	B65D 81/32 (2006.01)	B65D 75/36 (2006.01)																				
According to International Patent Classification (IPC) or to both national classification and IPC																						
B. FIELDS SEARCHED																						
Minimum documentation searched (classification system followed by classification symbols)																						
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched																						
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) EPODOC: WPI: Google Patent: B65D 81/32, B65D 75/36 & Keywords: (Container, Sachet, Pouch, Dual, Two, Twin, Dispense, Divider, Cleft, Port, Nozzle, Channel, Mix, Merge, Blister) and similar terms; DWPI: B65D & Keywords (Dual, Compartment, Package, Cleft, Partition, Tunnel, Combine) and similar terms																						
C. DOCUMENTS CONSIDERED TO BE RELEVANT																						
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.																				
P, X	DE 102006018038 A1 (BEIERSDORF AG) 18 October 2007 See figures 4 and 5.	1-9																				
X	WO 2006/079413 A2 (SULZER CHEMTECH AG) 3 August 2006 See abstract and figures 26 to 31.	1-9																				
X	Derwent Abstract Accession No. 2007-472872/46, Class A92 B07, JP 2007151844 A (FUJIMORI IND CO LTD) 21 June 2007 See abstract and figures 1 to 3.	1-9																				
X	WO 2007/068862 A2 (STEMMER et al.) 21 June 2007 See abstract and figures 1 through 11.	1-5, 7-15																				
<input checked="" type="checkbox"/> Further documents are listed in the continuation of Box C <input checked="" type="checkbox"/> See patent family annex																						
<p>* Special categories of cited documents:</p> <table border="0"> <tr> <td>"A"</td> <td>document defining the general state of the art which is not considered to be of particular relevance</td> <td>"T"</td> <td>later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</td> </tr> <tr> <td>"E"</td> <td>earlier application or patent but published on or after the international filing date</td> <td>"X"</td> <td>document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone</td> </tr> <tr> <td>"L"</td> <td>document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</td> <td>"Y"</td> <td>document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art</td> </tr> <tr> <td>"O"</td> <td>document referring to an oral disclosure, use, exhibition or other means</td> <td>"&"</td> <td>document member of the same patent family</td> </tr> <tr> <td>"P"</td> <td>document published prior to the international filing date but later than the priority date claimed</td> <td></td> <td></td> </tr> </table>			"A"	document defining the general state of the art which is not considered to be of particular relevance	"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention	"E"	earlier application or patent but published on or after the international filing date	"X"	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone	"L"	document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y"	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art	"O"	document referring to an oral disclosure, use, exhibition or other means	"&"	document member of the same patent family	"P"	document published prior to the international filing date but later than the priority date claimed		
"A"	document defining the general state of the art which is not considered to be of particular relevance	"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention																			
"E"	earlier application or patent but published on or after the international filing date	"X"	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone																			
"L"	document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y"	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art																			
"O"	document referring to an oral disclosure, use, exhibition or other means	"&"	document member of the same patent family																			
"P"	document published prior to the international filing date but later than the priority date claimed																					
Date of the actual completion of the international search 18 December 2008		Date of mailing of the international search report 23 DEC 2008																				
Name and mailing address of the ISA/AU AUSTRALIAN PATENT OFFICE PO BOX 200, WODEN ACT 2606, AUSTRALIA E-mail address: pct@ipaustalia.gov.au Facsimile No. +61 2 6283 7999		Authorized officer ROGER SMALL AUSTRALIAN PATENT OFFICE (ISO 9001 Quality Certified Service) Telephone No : +612 6283 7998																				

INTERNATIONAL SEARCH REPORT

International application No.

PCT/AU2008/001541

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 1133969 A1 (DOMPE' S.P.A) 19 September 2001 See abstract and figures 1 to 8.	10-19
X	DE 20111705 U1 (KLOCKE VERPACKUNGS-SERVICE GMBH) 27 September 2001 See drawing sheet.	10-16
X	US 4140409 A (DEVRIES) 20 February 1979 See figures 1 to 6.	10-13, 15-16
X	EP 0280784 A1 (DISPEN PAK JAPAN, CO., INC) 7 September 1988 See abstract and figures 1 to 2(d).	10-13, 16-19
X	US 4611715 A (REDMOND) 16 September 1986 See abstract and figures 1 to 6.	10-13, 16-19

INTERNATIONAL SEARCH REPORT

International application No.

PCT/AU2008/001541

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a)

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

See extra sheet.

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☒ As all searchable claims could be searched without effort justifying additional fees, this Authority did not invite payment of additional fees.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- ☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- ☐ No protest accompanied the payment of additional search fees.

Supplemental Box

(To be used when the space in any of Boxes I to IV is not sufficient)

Continuation of Box No: III

PCT Rule 13.2, first sentence, states that unity of invention is only fulfilled when there is a technical relationship among the claimed inventions involving one or more of the same or corresponding special technical features. PCT Rule 13.2, second sentence, defines a special technical feature as a feature which makes a contribution over the prior art.

The only feature common to all of the claims is “a container having an outer perimeter...having formed into it a cleft, the cleft dividing the container into two (distinct) chambers”. This concept however, is not novel in the light of any one of D1 to D8. Using D1 and D4 as examples:

D1: WO 2006/079413 A2 (SULZER CHEMTECH AG) 3 August 2006 – see figures 18 to 24; and

D4: EP 1133969 A1 (DOMPE' S.P.A) 19 September 2001 – see figures 1, 3, 4 and 8

This means that the common feature can not constitute a special technical feature within the meaning of PCT Rule 13.2, second sentence, since it makes no contribution over the prior art.

Because the common feature does not satisfy the requirement for being a special technical feature it follows that it cannot provide the necessary technical relationship between the identified inventions. Therefore the claims do not satisfy the requirement of unity of invention *a posteriori*.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/AU2008/001541

This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent Document Cited in Search Report			Patent Family Member		
DE	102006018038	NONE			
WO	2006079413	CA	2578756	CN	101087723
		EP	1843952	US	2008123465
WO	2007068862	FR	2894942		
EP	1133969	AU	50370/01	EP	1263389
				WO	2001068030
DE	20111705	DE	20102348UU	WO	2002064444
US	4140409	CA	1093016		
EP	0280784	JP	63111469U	US	4790429
US	4611715	AR	242931	AU	47827/85
		CA	1239116	CN	85107387
		DK	465085	EP	0178918
		FI	853798	GR	852479
		HU	41688	IL	76259
		JP	61104973	NO	853840
		PH	22212	PT	81313
				BR	8505096
				CS	8507361
				ES	289630U
				HK	162496
				IN	167033
				NZ	213298
				YU	147585

Due to data integration issues this family listing may not include 10 digit Australian applications filed since May 2001.

END OF ANNEX